Reviewer’s report

Title: Prevalence of intestinal parasites and associated risk factors among inmates of Mekelle prison, Northern Ethiopia, in 2017

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Reviewer: José Guillermo Esteban

Reviewer's report:

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The authors carried out a study in prisoners of the Makelle Prison in the Tigray Region, in northern Ethiopia, assessing the spectrum of intestinal parasites, their prevalences and looking for risk factors of these parasitoses. The results deserve publication in BMC Infectious Diseases, although several considerations should be taken into account.

- Are the inmates of Mekelle prison asymptomatic carriers of intestinal parasites?

- With regard to Material and Methods, and concerning the paragraph on Study setting and population, the authors should provide more information about Mekelle city: population; administration of the area; how do the inhabitants make a living; temperature range and precipitation; is there a hospital or health center?; altitude of the city, etc.

- The authors refer to the macroscopical examination of the fecal samples with regard to their consistency, composition, and color. Was anything special found in the macroscopical examination of the samples analyzed?

- Who carried out the collection of the fecal samples and of the questionnaires? And, who carried out the opportune parasitological analysis?

- Which criteria were used to establish the age groups (years)?

- The paragraph on "Socio-demographics of study participants" should be moved from the Results section to Material and Methods. In fact, it is not clear which role the ethnic groups play, when later on, there is no reference to intestinal parasites according to ethnic groups.

- The presence of E. histolytica/E. dispar/E. moshkovskii should be put into context along the entire Ms, always replacing E. histolytica
- Figure 1 should be changed. It is a lot more relevant to know the total number of individuals who presented each parasite species. In this sense, the 55 subjects who carried E. histolytica/E. dispar/E. moshkovskii + the 9 subjects who carried E. histolytica/E. dispar/E. moshkovskii with G. lamblia + the only subject with E. histolytica/E. dispar/E. moshkovskii with E. vermicularis + the subject with E. histolytica/E. dispar/E. moshkovskii and S. mansoni + the subject with E. histolytica/E. dispar/E. moshkovskii and Taenia, and + the subject with E. histolytica/E. dispar/E. moshkovskii with Hookworm and T. trichiura. However, there is a total of 68 individuals who presented E. histolytica/E. dispar/E. moshkovskii, and the total should be given for each one of the intestinal parasite species detected. Thus, it will be possible to demonstrate that the parasite spectrum of the inmates of Mekelle prison consists of eight intestinal species. Another very different aspect is the analysis concerning multiparasitism, which the authors present in Figure 1. Thus, this aspect should be re-described.

- It is rather surprising that only three protozoan species were detected. And, particularly surprising is the fact that species such as E. hartmanni, Endolimax nana, Iodamoeba butschli, and, especially, Blastocystis spp. which were not detected. In this sense, it seems convenient to remember that other protozoan species are considered non-pathogenic or if they are, from an epidemiological point of view, all these species share the same transmission mechanism, always linked to the ingestion of infective cysts and trophozoites through the faecal-oral route. In fact all of these are indicators of the hygienic state of the environment as well as the health and hygiene measures taken by the subjects.

- There are also differences in the prevalences of intestinal parasites detected among the different prisoners. The authors reflect, in a very general manner, on such differences in prisoners from Nigeria, Sudan, Kenya and Ethiopia. Nevertheless, it would be interesting to know which are the conditioning factors that allow to establish the significant differences between the prisoners from Ethiopia, such as Shewa Robit prison or even Bedele prison when compared to Mekelle prison.

- The explanation given with regard to the different prevalences of protozoans and of helminths does not seem very adequate. The authors comment that "intestinal protozoa can directly be transmitted while intestinal helminthes require a period of maturation in the environment". The ingestion of meat (Taenia), walking barefoot (Hookworm) and using fresh water (Schistosoma) have nothing to do with the comments made. Perhaps the only subject is the one who harbored Trichuris, whose eggs require a maturation period. Thus, the absence of Ascaris lumbricoides is particularly surprising in this context.

- Finally, with regard to the explanation of the prevalences of protozoans, it would be crucial to mention the quality of the drinking water, making a reference to the latrines in the prison, and also the possibility of transmission through sexual activities should be considered.

- With regard to the English language, the general level is acceptable but the Ms should be checked by a native speaker before publication.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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